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Distribution automation using distribution line carrier systems –

Part 5-5: Lower layer profiles – Spread spectrum-fast frequency hopping (SS-FFH) profile

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FOREWORD

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- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

IEC 61334-5-5, which is a technical specification, has been prepared by IEC technical committee 57: Power system control and associated communications.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
57/489/CDV	57/518/RVC

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

The committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

- transformed into an International Standard;
- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

This technical specification describes a new physical layer variant with respect to the already defined modulation techniques FSK and S-FSK within the IEC 61334 series (IEC 61334-5-1 and IEC 61334-5-2 [1]).

The SS-FFH profile outlined in this technical specification basically incorporates spread spectrum modulation techniques. It offers the main advantages of very high robustness and improved EMI characteristics without sharing classical spread spectrum drawbacks such as exaggerated bandwidth demand or impractical realization.

The profile specifies the physical layer including the transmission methods and the services provided by both the physical layer and medium access sublayer entities.

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[1] IEC 61334-5-1, *Distribution automation using distribution line carrier systems – Part 5-1: Lower layer profiles – The spread frequency shift keying (S-FSK) profile*

IEC 61334-5-2, *Distribution automation using distribution line carrier systems – Part 5-2: Lower layer profiles – Frequency shift keying (FSK) profile*

DISTRIBUTION AUTOMATION USING DISTRIBUTION LINE CARRIER SYSTEMS –

Part 5-5: Lower layer profiles – Spread spectrum-fast frequency hopping (SS-FFH) profile

1 Scope and object

This technical specification describes the requirements of the spread spectrum-fast frequency hopping (SS-FFH) approach for distribution line carrier communication systems. It incorporates the primitives provided by the physical and MAC layer entities as well as the modulation and transmission methods.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61334. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61334 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 61000-3-8, *Electromagnetic compatibility (EMC) – Part 3: Limits – Section 8: Signalling on low-voltage electrical installations – Emission levels, frequency bands and electromagnetic disturbance levels*

IEC 61334-4-1, *Distribution automation using distribution line carrier systems – Part 4: Data communication protocols – Section 1: Reference model of the communication system*

IEC 61334-4-32, *Distribution automation using distribution line carrier systems – Part 4: Data communication protocols – Section 32: Data link layer – Logical Link Control (UC)*

ITU-T Recommendation V.42, *Error-correcting procedures for DCEs using asynchronous-to-synchronous conversion*